

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

#3260
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June 1, 2009

TO: Internal File

THRU: James D. Smith, Permit Supervisor / Environmental Scientist III *DS ac/oa/or*
 (Steve Christensen, Team Lead / Environmental Scientist II / Hydrologist *PHH by SQS*)

FROM: Peter Hess, Environmental Scientist III / Engineering and Bonding

RE: Mine Memorial & Portal Water Discharge Facilities, Genwal Resources, Inc., Crandall Canyon Mine, C/015/0032, Task ID #3260

SUMMARY:

The Crandall Canyon #1 Mine has been sealed and no future mining activities are anticipated here. The seals are discharging water to the surface. As the result of several exceedances of the UPDES parameter for total iron, and a Utah Division of Water Quality violation, the Permittee has found it necessary to propose several changes to the reclamation plan. These changes were also necessitated by a mandate from the Division of Oil, Gas and Mining (Division Order DO08A) to address the situation for treatment and discharge of the high iron water.

Minor changes relative to the addition of the Crandall Canyon Miner's Memorial have also been made.

This memo will address the engineering and bonding requirements of the R645 Coal Mining Rules.

TECHNICAL ANALYSIS:**RECLAMATION PLAN****GENERAL REQUIREMENTS**

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

Task ID # 3260, APPENDIX 5-22, contains the reclamation plan for the Crandall Canyon Mine site. Two revisions have been submitted as red-line strike out;

- 1) Page 2 contains information stating that part of the Forest Service road accessing the Crandall Canyon Memorial was deeded to Emery County in the summer of 2008.
- 2) Page 4, Reclamation Plan Detail, an estimated 61, 500 loose cubic yards of excess fill will be disposed of at an approved landfill facility.
- 3) **Pages 8, 9, and 10, section 12, Demolition and Removal of Surface Facilities-Old Loadout Area;** due to the discharge of mine water containing iron in concentrations exceeding UPDES discharge parameters, and subsequent violations from the Utah Division of Water Quality as well as the Division of Oil, Gas, and Mining, GENWAL Resources is proposing to construct a water treatment facility for the mine water. This area also collects seepage from the Star Point escarpment which lies below the Mine portal seals. To date, a final reclamation plan for backfilling the Mine portals and the saturated sandstone ledge has not been developed. This will be done after the proposed water treatment facility becomes operational.

The Permittee has made the following commitments to be implemented following Division approval of this application;

- a) Submit a final reclamation plan for the portal and seepage area upon implementation of and reporting flow assessment to the proposed mine water treatment facility.
- b) Monitor and assess the possibility of the need for long term mine water treatment.
- c) Amend the mine reclamation plan and bonding requirements based on the determination made under commitment b), i.e., hire a geotechnical engineering firm to design a stable fill slope with an adequate underdrain system to handle long-term seepage flow. Incorporate this design into the final reclamation plan.
- d) Monitor mine water discharge volumes and all applicable UPDES parameters for exceedances and track the iron levels at the inflow and outflow points of the proposed water treatment facility. Make a

determination if water treatment for the high iron levels will continue long term.

- e) Modify the reclamation plan and bonding requirements if it is determined that the water treatment facility, either in its present design configuration, or if the system requires enlargement, or if it is determined that the proposed system is ineffective or inadequate, be implemented for long term mine water treatment.

The commitments made by the Permittee appear to address most of the foreseeable problems with the installation of the proposed mine water treatment system. However, the Division finds that the current verbiage is deficient.

On page 9 of APPEDIX 5-22, in paragraphs two and five, **the Permittee must commit to investigating and implementing other methods of treatment of the high iron mine water discharges should the current proposed treatment method, or the current proposed method in an expanded capacity fails to reduce the iron levels in the mine water discharge volume to acceptable UPDES parameter levels.**

Findings:

The proposed change to the currently approved reclamation plan is deficient. The Division agrees with the Permittee's proposal to use aeration and lime stone gravel to drop out the high iron levels of the Mine water discharge.

However, in accordance with the requirements of DO-08A, and

R645-301-751, Water Quality Standards and Effluent Limitations,

The Division requires that the Permittee amend the reclamation plan to commit to investigating and implementing, if successful, other methods of reducing the high iron levels in the Crandall Mine water discharge should the current proposal, or the current proposal in an expanded variation fail to bring the mine water discharge into UPDES compliance.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

Analysis:

Reclamation

The reclamation of the USFS Service Road north of the Genwal Mine expansion area is proposed as follows on page 11, section 15, APPENDIX 5-22. This road, part of which has been deeded to Emery County, “now provides permanent access to the Crandall Canyon Memorial, which is owned by Emery County...the final disposition of the reclamation requirements regarding pavement removal may be determined in the future depending on discussions between the agencies involved.”

Retention

The road to the Crandall Canyon Miner’s Memorial is an access which will more than likely be maintained forever, in order to provide access for the families of the lost men. No heavy vehicles will likely use this road, once the Mine is reclaimed. However, reclamation of the surfacing material and drainage controls must be worked through by Emery County, the USFS, and the Division.

Findings:

The proposed revision contained in Appendix 5-22 relative to this Special Use Road managed by the USFS appears adequate to the Division at this time.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

Affected Area Boundary Maps

The Task ID # 3260 application contains a revised FIGURE 1 which delineates eight areas within the Crandall Canyon #1 Mine disturbed area.

The Permittee has donated 0.803 acres to Emery County to serve as surface acreage for the Crandall Canyon Mine Miner’s Memorial and public parking area. This area is at the west end of the Mine disturbance.

All other areas identified (1) portal area, (2) old loadout area, (3) Phase 2 Reclamation Area, (4) old substation area (5) shop area, (6) expansion area, and (7)

Forest Service road will be reclaimed in accordance with the requirements of the R645 Coal Mining Rules.

The currently approved reclamation plan does not adequately address the discharge of mine water from the four portals associated with the #1 Mine.

Bonded Area Map

Reclamation Backfilling and Grading Maps

Final Surface Configuration Maps

The revised FIGURE 1 includes all areas of disturbance of the Crandall Canyon Mine for which a reclamation bond has been posted.

Reclamation Surface and Subsurface Manmade Features Maps

Plate # 5-16, Crandall Canyon Mine Reclamation (Phase I) depicts the features which will remain post-mining including the restored stream channel below the Miner's Memorial, the Mine site sediment pond, and the USFS and Emery County roads. Phase I requires the retention of the undisturbed bypass culvert in Crandall Creek beneath the Miner's Memorial parking area as well as the length of culvert passing adjacent to the south end of the incisement for the Mine site sediment pond. The sediment pond must be retained until the Permittee has established that effluent parameters are being met and that reclamation area erosion is being controlled.

Reclamation surface contours on PLATE 5-16 are not legible.

Two culverts will route road drainage from ditch RD-1 (runs parallel with north side of FS and Emery county road) to various treatments. UD-1, located immediately east of the USFS parking lot area, will divert collected runoff immediately to Crandall Creek (100 feet east of memorial area culvert apron (outlet). Culvert C-4 will drain the road into a riprap channel reporting into the mine site sediment pond. The UPDES outfall from the sediment pond will be retained until the pond is reclaimed.

In Phase I, sediment control along Crandall Creek where the undisturbed bypass culvert has been removed (a channel length of approximately 1,000 feet) will be provided by some alternate methods (i.e., silt fence or straw bales).

PLATE 5-17 shows the Crandall Canyon reclamation area at the end of PHASE II. The Mine site sediment control pond has been removed, as has the undisturbed bypass culvert in Crandall Creek (length of 400 feet). The rip rapped channel below the outlet of road culvert C-4 has been lengthened such that its reporting flow is carried directly into Crandall Creek.

Reclamation surface contours on PLATE 5-17 are not legible.

PLATE 5-17A depicts six cross-sections starting in Crandall Creek at 0+00 (about 30 feet above the retained undisturbed bypass culvert inlet in Crandall Creek). The culvert outlet is shown at 190 feet and the edge of the outlet apron coincides with cross-section 2+00. PLATE 5-17 shows the undisturbed bypass culvert reclaimed from cross section 2+00 to 11+00.

PLATE 5-17A shows that cross-sections 2+70, 3+00 and 4+00 have the undisturbed bypass culvert left in place with the fill overhead. A blue line on these same three sections shows a reclamation configuration. The information conflicts not only on 5-17A but also with 5-17 for the three cross sections.

The Permittee must revise cross sections 2+70, 3+00 and 4+00 on PLATE 5-17A such that the information they provide correlates with PLATE 5-17.

Certification Requirements

PLATES 5-16, 5-17 and 5-17A are all P.E. certified by Mr. David W. Hibbs, Utah registered professional engineer.

Findings:

The application is deficient.

In accordance with the requirements of;

R645-301-542.300 and -310: The Permittee must revise PLATE 5-17A. PLATE 5-17A must be revised in order to correlate with the information provided on PLATE 5-17. 5-17A must be recertified by Mr. David Hibbs.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

General

The Division holds two bonds amounting to \$ 2,062,000 for the reclamation of the 27.15 acres of disturbance associated with the Crandall Canyon Mine.

Form of Bond

American Home Assurance Company is the surety providing \$ 1,654,000 of coverage at this site. The remaining \$ 408,000 is a collateral bond posted by Treasury Securities.

Determination of Bond Amount

Task ID # 3260 contains a proposed addition to APPENDIX 5-20 RECLAMATION COST ESTIMATE FOR THE BOND AMOUNT. The Permittee's proposed change states that the title transfer of the 0.803 acres of the upper Mine yard to Emery County for use as a parking area should cause a reduction in the demolition, earthwork and revegetation portions of the reclamation bond in an amount of \$ 77,800.00.

The Permittee is not requesting a reduction in the bond amount at this time.

Terms and Conditions for Liability Insurance

The Permittee retains general liability insurance coverage for this site.

Findings:

The application meets the minimum regulatory requirements of the R645 Coal Mining Rules.